



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/707,648	11/07/2000	Rohit Patnaik	99,868-C	9343

24313 7590 04/05/2005

TERADYNE, INC
321 HARRISON AVE
BOSTON, MA 02118

EXAMINER

AHMED, SAMIR ANWAR

ART UNIT PAPER NUMBER

2623

DATE MAILED: 04/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/707,648

Applicant(s)

PATNAIK, ROHIT

Examiner

Samir A. Ahmed

Art Unit

2623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 October 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 10-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 7 and 8 is/are allowed.
- 6) ☒ Claim(s) 1-6 and 10-18 is/are rejected.
- 7) ☒ Claim(s) 18 and 19 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

1. The amendment filed 10/19/04 have been entered and made of record.
2. Applicant's arguments filed 10/19/04 have been fully considered but they are not persuasive with regard to claim 1 for the following reasons:

As to claim 1, the Applicant alleges that "At col. 7, lines 1-55 with reference to Fig. 7, Rock [,]", (page 3, lines 17-29). The Examiner disagrees. As shown in Fig. 10, the solder thickness is measured between the ball region and the pad perimeter within an inner-ring ROI 54, and an outer-ring ROI 56 in a slice image of the BGA, i.e., plurality of diameters are measured in the same slice.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:
4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-6, 10-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Rooks (U.S. Patent 5,719,952). The grounds for rejections stated in paragraph 3 of the Office Action mailed on 7/14/04 paper number 8, are incorporated by reference herein.

As to claims 1-6 refer to claim 1-6 rejections stated in paragraph 3 of the Office Action mailed on 7/14/04 paper number 8, are incorporated by reference herein.

As to claim 10, Rooks further discloses, wherein the slice image is a synthesized slice image [Rooks discloses inspecting solder joints that uses both inspection methods

Art Unit: 2623

"X-ray laminography and tomosynthesis" (col. 5, lines 41-43). In X-ray tomosynthesis, a slice image is synthesized from plurality of images (col. 5, lines 15-20)].

As to claim 11, Rooks further discloses, wherein the slice image is an actual slice image [the slice image is an actual slice image produced by X-ray laminography (col. 6, lines 58-60)].

As to claim 12 refer to claim 1 rejection. Rooks further discloses calculating a deviation using the measured diameters and an expected diameter [an offset (deviation) is calculated using the measured diameters and the diameter of the ROI (col. 9, lines 11-27), the ROI is defined by designed data (expected diameter) (col. 8, lines 1-2).

As to claim 13, Rooks further discloses, further comprising the step of comparing the deviation to a threshold [the offset (deviation) is compared to a threshold (col.10, lines 32-37).

As to claims 14-18 refer to claim 2-6 rejections.

Allowable Subject Matter

6. Claims 7-8 are allowed.

7. Claims 19-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

As to claim 19, the limitation "wherein the deviation comprises a sum of the differences between the measured diameters and the expected diameter", is not disclosed or suggested by the prior art of record.

Claim 20 depends from claim 19.

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

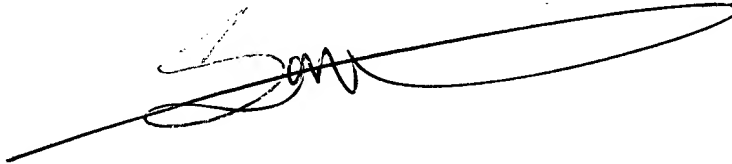
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Samir A. Ahmed whose telephone number is (571) 272-7413. The examiner can normally be reached on Mon-Fri 8:30am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on (571) 272-7414. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2623

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SA

A handwritten signature in black ink, appearing to read 'SAMIR AHMED', is written over a horizontal line.

**SAMIR AHMED
PRIMARY EXAMINER**